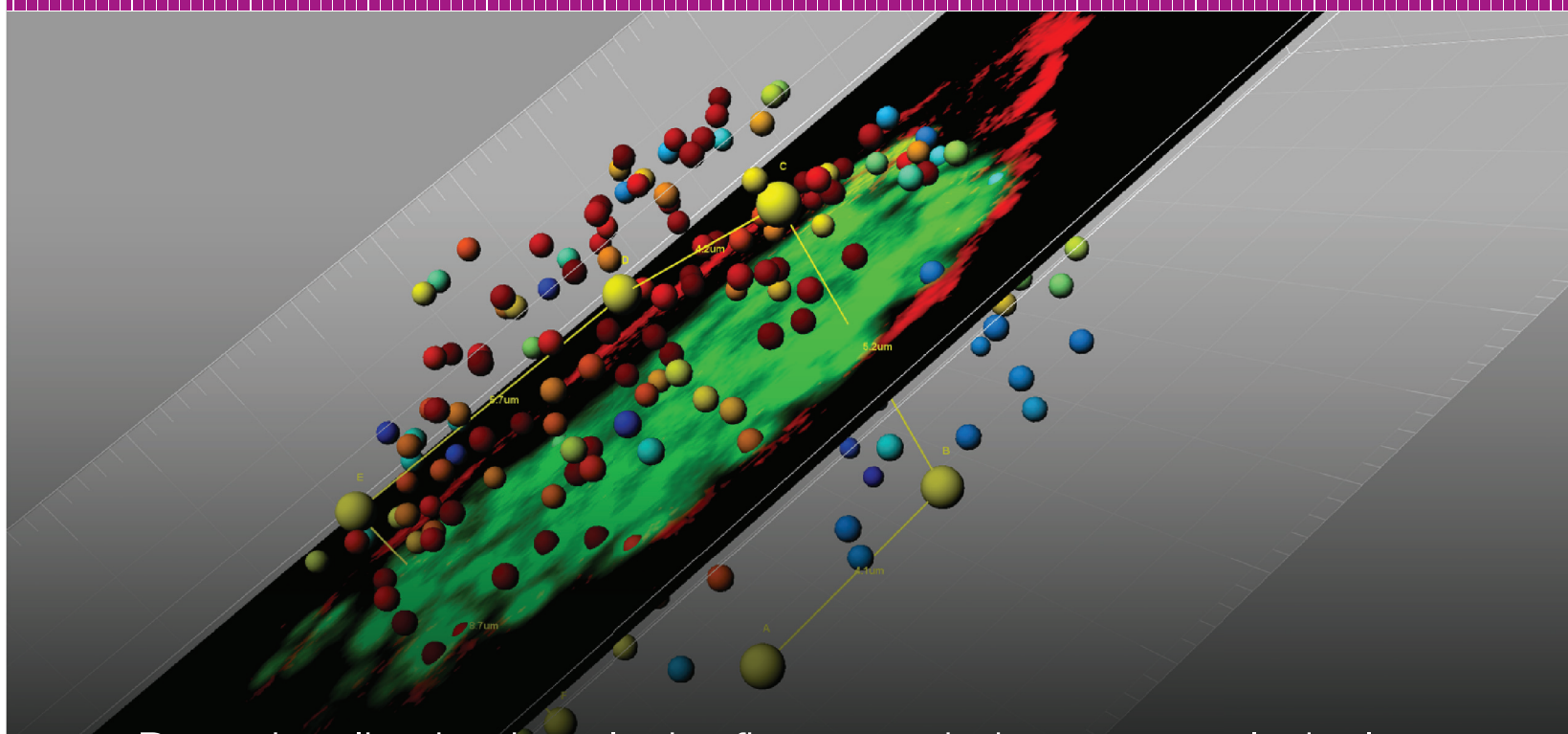
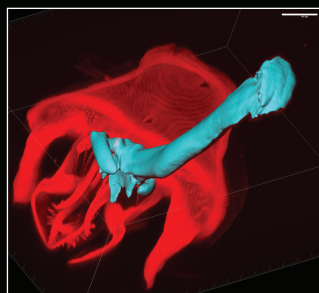


Imaris MeasurementPro

The Importance of Quantitative Image Analysis



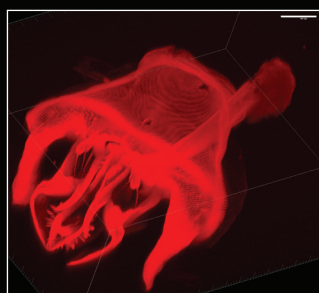
Data visualization is only the first step during your analysis. It is followed by accurate measurements and extraction of key statistical information needed in scientific data mining closely associated with 3D/4D image analysis



Imaris MeasurementPro adds a set of high-performance tools to analyze your multidimensional image data. **Imaris MeasurementPro** enables you to quickly access the most relevant statistical parameters, including geometric and intensity measurements, thereby extending the capabilities of the exceptional volume rendering, surface rendering and object slicing functionality of **Imaris**.

Imaris MeasurementPro has three components:

- An extension of **Imaris** that enables the calculation and display of numerous statistical measurements from both voxel data and segmented objects.
- A component for interactive 3D distance and line intensity measurements.
- A mechanism to construct 3D surface objects from 2D semi-automatically drawn contours.

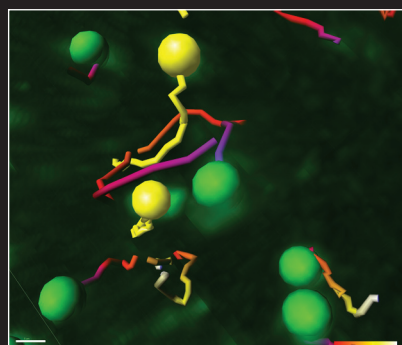
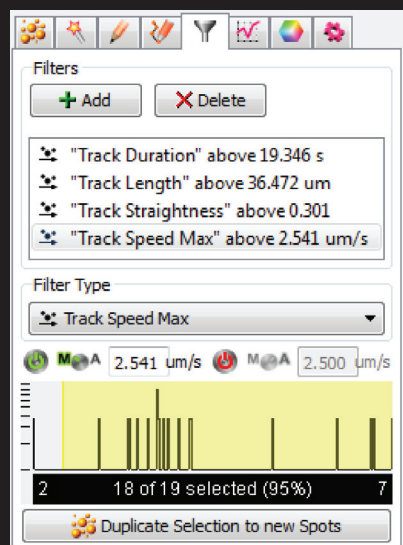


Left top: A manually segmented section of Drosophila reproductive system created as a threshold-based Surface from a part of the dataset by contouring the feature of interest within a region of interest.
Left bottom - Original 3D data set displaying a complicated structure that cannot be segmented automatically to highlight the key region.

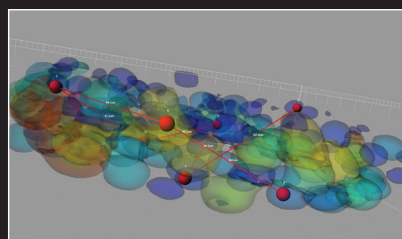
Main Image: Visualization, classification and measurements of inters vesicular distances within a dual-labeled cell. Yellow lines show distances between a set of selected vesicles (yellow) and the rest of their population color-coded according to original objects intensities.

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MeasurementPro calculates numerous statistics of analyzed objects and allows the user to filter their data for highly sophisticated data sorting and mining. Objects tracked in the image above have been filtered through filters specific for track duration, length, straightness and speed.



Measurement points can also be used to measure distances between non-segmented volume rendered data and objects created in Imaris. For example, a line can be created between one point on an orthoslice and another on an isosurface. All measurements are automatically saved to a comma-separated spread sheet file.

Measuring Intensity

With **Imaris MeasurementPro** you can obtain precise measurements of intensity values for groups of selected voxels and objects that have been segmented using **Imaris'** surface segmentation or spot segmentation methods. **Imaris MeasurementPro** refers back to the original data in the identified segmented region and produces statistical results for each identified object. These values can be easily calculated and include integral, standard deviation, median, minimum, maximum and the center of mass.

Your Benefits

- NEW – use novel Similarity filter to select a reference object with its statistics of interest to find similar objects characterized by these statistics in your data set, e.g. mitochondria of similar sphericity.
- Generate smooth, accurate objects, which offer maximum image quality and high volume accuracy based on 2D contours.
- Draw contour surfaces with a choice of individual section planes. Zoom or pan as needed; pause or resume contour drawing at any time, add or delete points that define the contour of the object so that the most precise description of the object of interest can be obtained.
- Build sophisticated objects such as lung or nerve tissue that fork or merge on section planes.
- Combine manually-built objects with automatically-generated ones such as surfaces or any other surpass objects.
- Trace contours while the system automatically inserts vertices at user-defined intervals – either lapsed time or distance. The isoline and the magic wand tools can automatically detect complete 2D contours and the “auto adjust” tool can automatically refine the manual, semi-automatic or automatic detection of 2D contours.

Manual Object Segmentation

The standard method of segmenting individual objects in fluorescently labelled specimens is intensity thresholding. For images with good contrast and low noise, this method works well. However, in less ideal situations where it can be extremely difficult to obtain well segmented objects, threshold-based segmentation may not work. To overcome this, **Imaris MeasurementPro** offers a powerful segmentation tool to semi-automatically draw user-defined surfaces across slices of a z-stack. With this tool users can build 3D objects based on 2D contours.

With the ability to measure what is observed, changes can be easily documented and compared. Patterns are revealed. Now, with **Imaris MeasurementPro**, you can always measure and quantify what you see.

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Software requirements

Imaris MeasurementPro requires **Imaris**. Obtaining statistical data for original image and Cell or Filament objects requires **ImarisCell** and **FilamentTracer**, respectively. Statistical data for objects' tracks requires **ImarisTrack**.

Operating system requirement

Imaris MeasurementPro runs on PCs with Microsoft (R) Window (R) XP, Vista, 7 (32 and 64-bit) and MacOS (10.5 or later) .

Windows systems - we recommend using 64-bit OS with 8GB RAM, 3 GHz (or faster) dual-core CPU with 64-bit support.

Mac systems - we recommend using Intel 2.2 GHz (or faster) CPU and 8GB RAM

Graphics boards - ATI/nVidia graphics card with 512 MB RAM. For full list of supported hardware please visit <http://www.bitplane.com/go/support/system-requirements>

Bottom Image on this page shows stained nuclei of a sea urchin embryo.

Top two images on front page courtesy of Dr. James G. Evans, Whitehead Institute, MIT.